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Enterprise Integration Center (e-IC)

DoD Nanotechnology & Logistics (NanoLog) e-Portal

DoD Nanomaterials ESOH WG Meeting

Nonna Bond (ODUSD/LMR)

Robert S. Kidwell (Vice President/Sr. Technical Director)

Dr. Lars Ericson (Sr. Scientist)

July 30th, 2008

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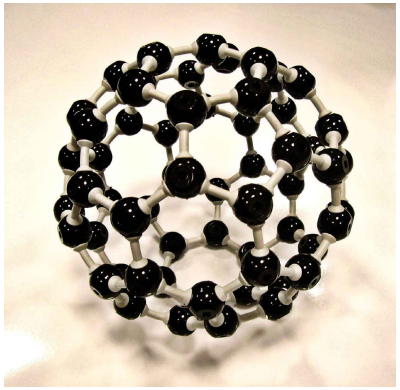
Today's Goal

- ***Demonstrate the NanoLog e-Portal***
- ***Discuss role of NanoLog in DoD Nano ESOH***
- ***Address Nano Update Analysis Report Comments***

"The greater institutional risk for DoD is over reliance on traditional platforms and delaying the advent of new technologies and systems."[1]

– Gordon England, Deputy Defense Secretary



REF: [1]Office of Force Transformation, *Transformation Trends*, APR05. Image: Stephen Lyth

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NanoLog e-Portal Vision

Objective:

Establish a free collaborative environment that serves as a centralized site for education, communication, and facilitation of nanotechnology in DoD Logistics.

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Sponsor:

Office of the Deputy Under Secretary of Defense (Logistics & Materiel Readiness)

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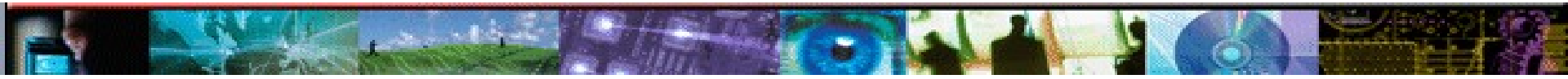
NanoLog e-Portal Roles

Three Key Roles

- "One-stop shopping" information resource
- Nexus for stakeholder communities
  - Nanotech researchers
  - Nanotech companies
  - DoD logistics personnel
  - DoD S&T personnel
- Enable nanotechnology activities in support of DoD logistics transformation through informing and catalyzing partnerships



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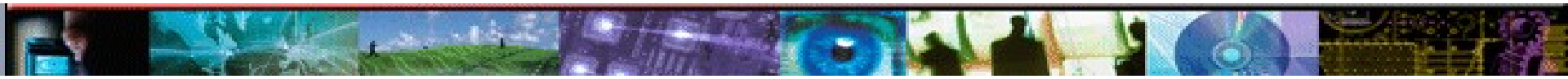
NanoLog e-Portal Overview

Overview

- Free & open online website accessible 24/7
- Community of Practice Knowledge Strategy
  - Core Group shapes vision/role
- Modeled after
  DoD Corrosion Exchange e-Portal



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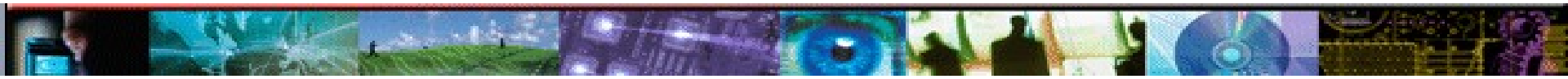
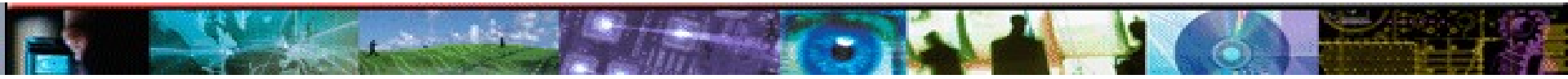
NanoLog e-Portal Access & Security

- **Membership:**
  - Open to Gov, Industry, Academia
  - Currently open to non-US citizens
  - Working Group membership can be restricted (e.g. DoD-only, Project/Initiative only)

- Unclassified System
- System hosted at ManTech e-IC (Fairmont, WV)
- Security Certificate used to protect account info



NanoLog e-Portal Demonstration (Live)



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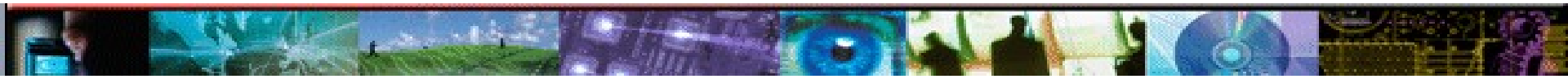
Nanotechnology Assessment

To assess the applicability of Nanotechnology in Logistics Support Systems, Processes, and Material

- Analysis Subtopics
  - Nanotechnology Research
  - Nanotechnology Standards
  - Nanotechnology and DoD Logistics
- Deliverable Reports (2006)
- Periodic Update Analyses Performed



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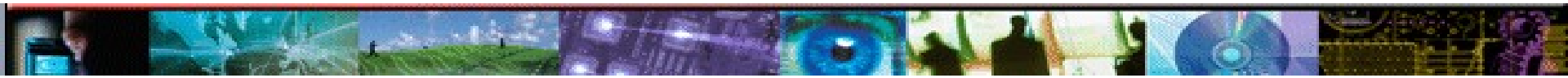
Discussion

- Role of NanoLog in DoD Nanomaterials ESOH

- Nanotech Update Analysis Report Comments



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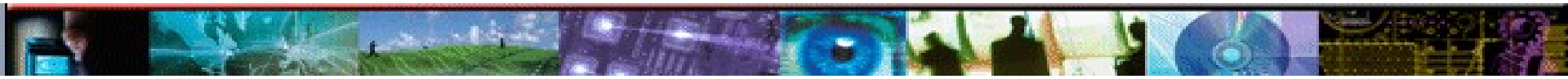

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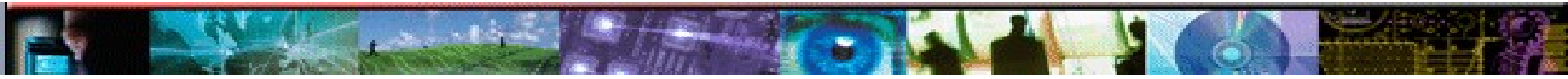
SUPPLEMENTAL SLIDES



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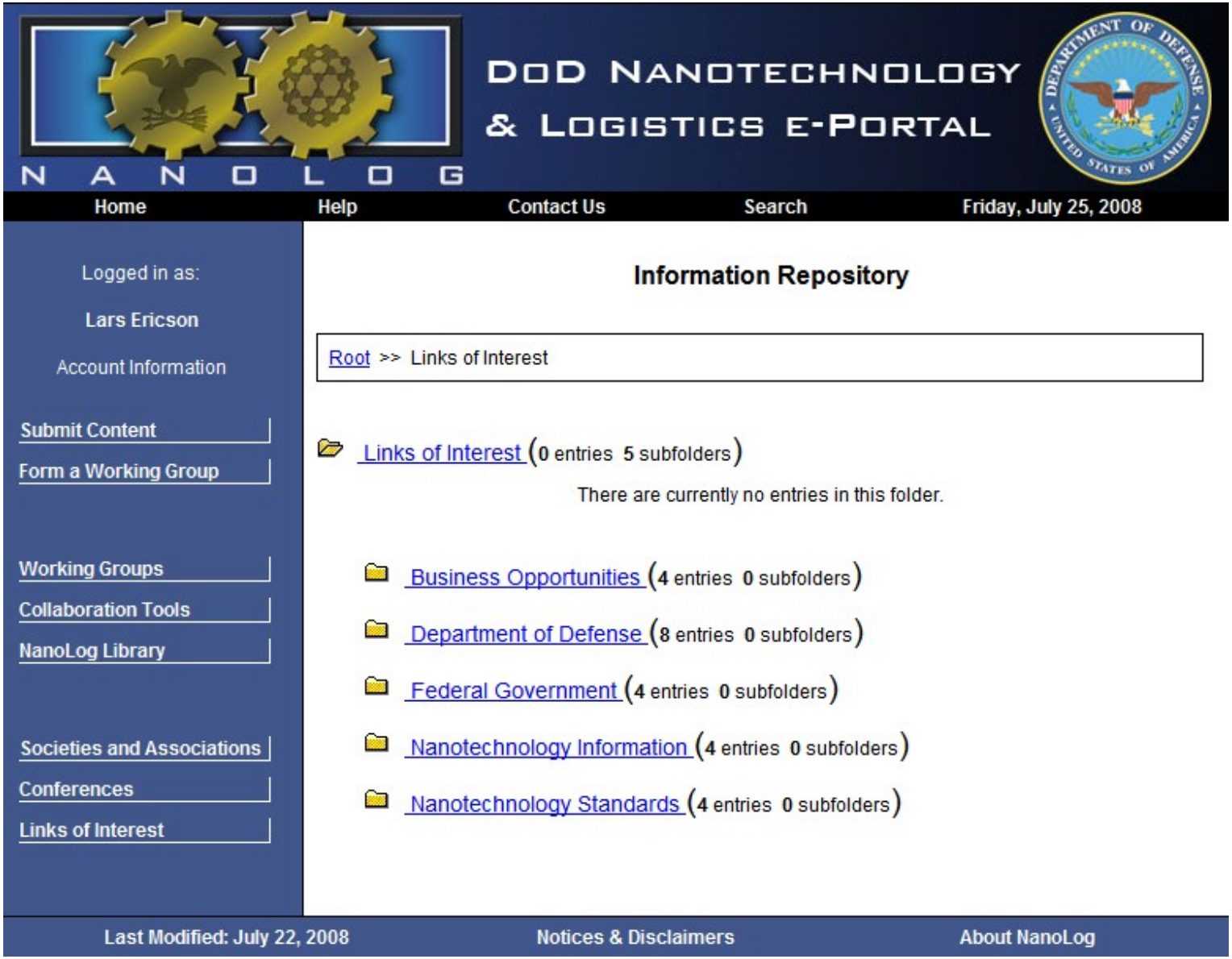

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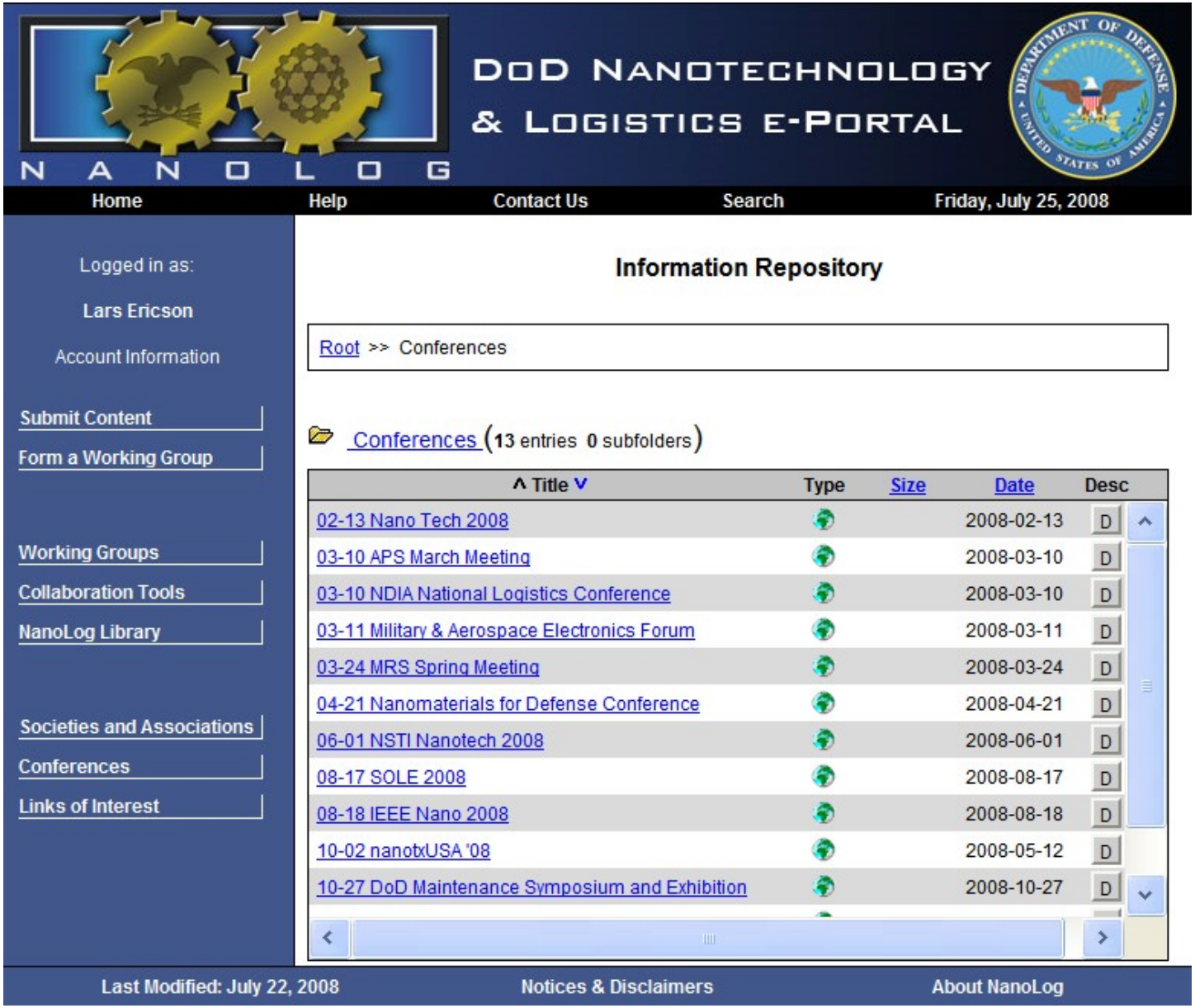

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NanoLog Membership Registration Form

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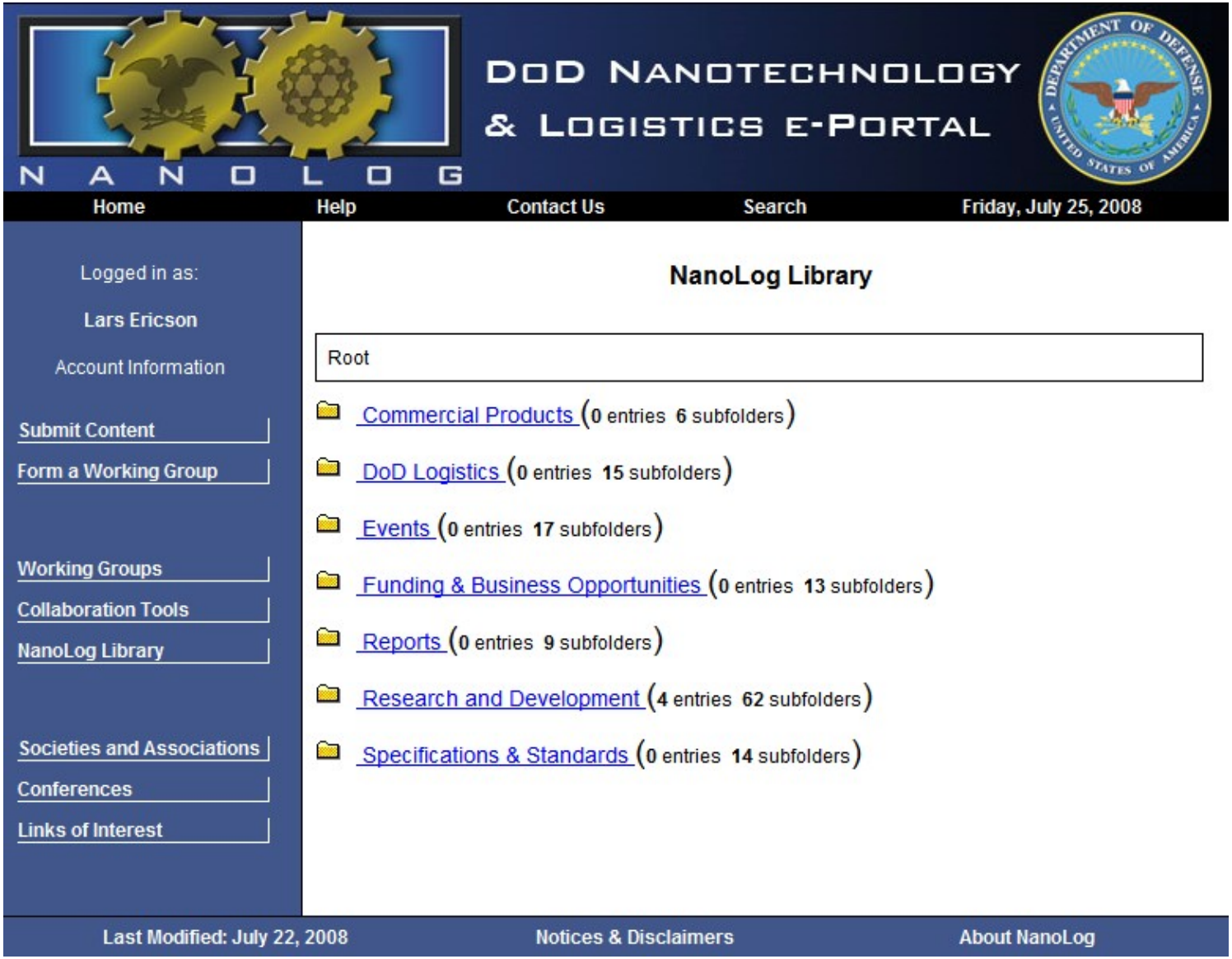
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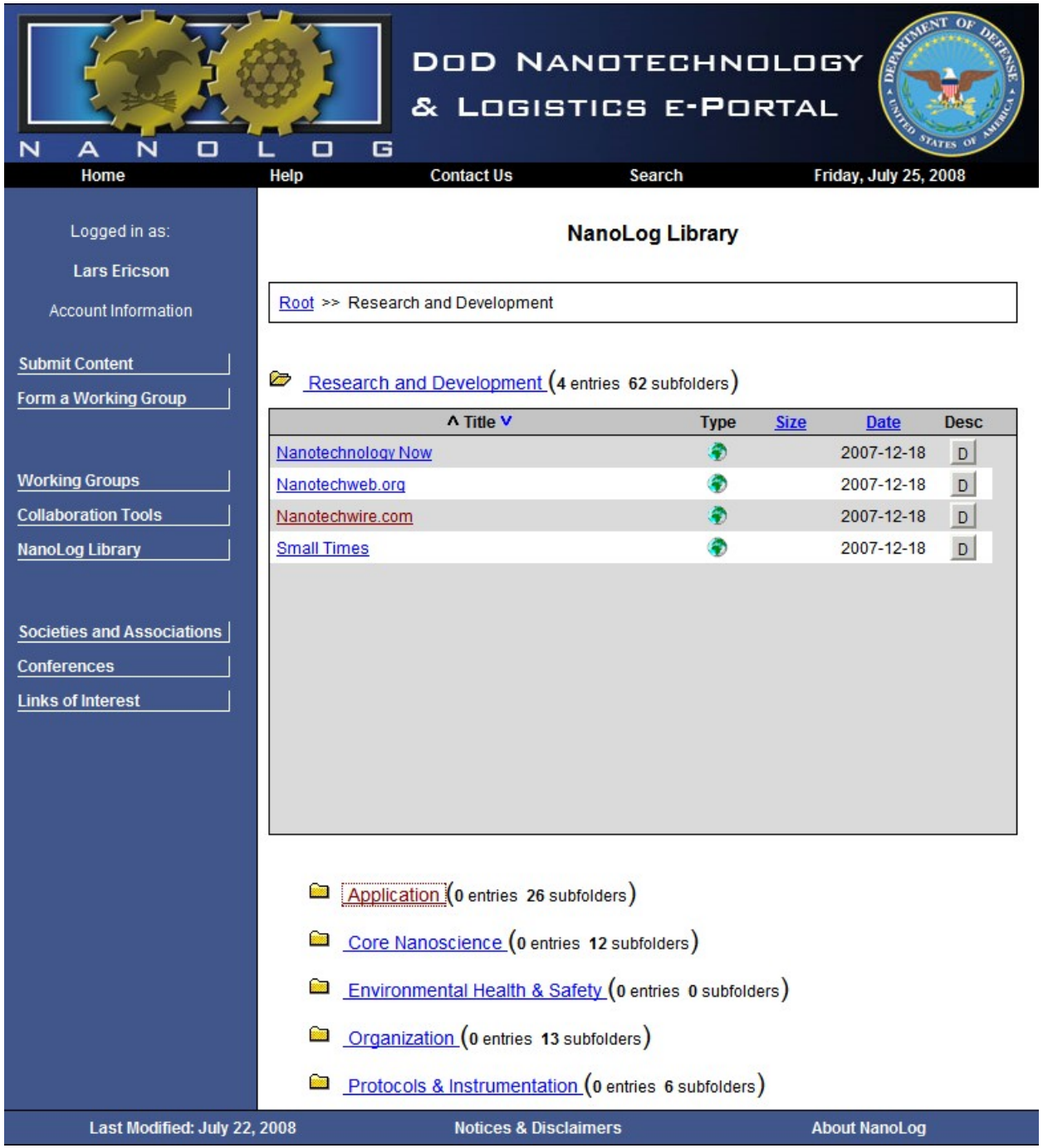

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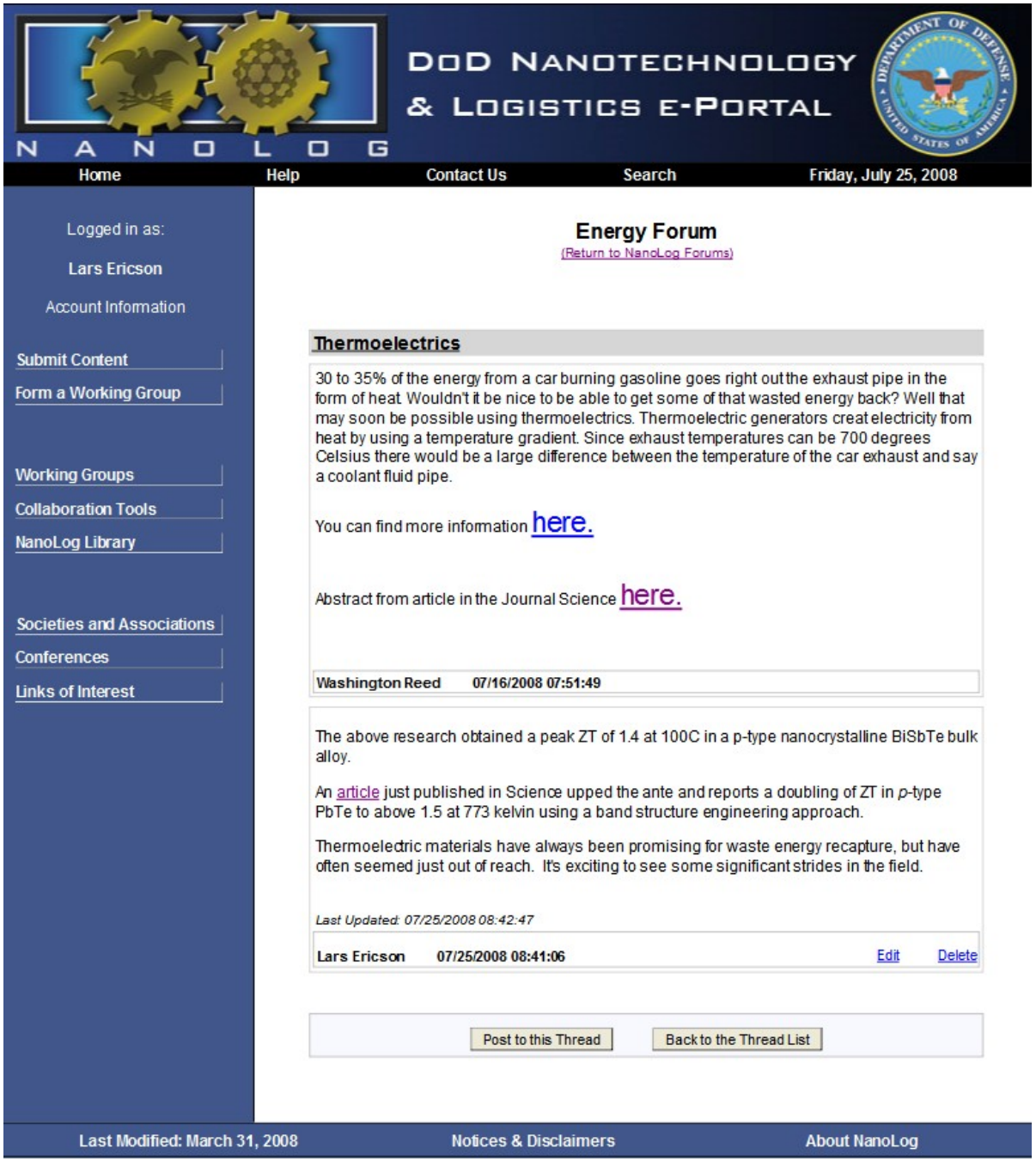
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Thermoelectrics
30 to 35% of the energy from a car burning gasoline goes right out the exhaust pipe in the form of heat. Wouldn't it be nice to be able to get some of that wasted energy back? Well that may soon be possible using thermoelectrics. Thermoelectric generators creat electricity from heat by using a temperature gradient. Since exhaust temperatures can be 700 degrees Celsius there would be a large difference between the temperature of the car exhaust and say a coolant fluid pipe.
You can find more information here.
Abstract from article in the Journal Science here.
Washington Reed 07/16/2008 07:51:49
The above research obtained a peak ZT of 1.4 at 100C in a p-type nanocrystalline BiSbTe bulk alloy.
An article just published in Science upped the ante and reports a doubling of ZT in p-type PbTe to above 1.5 at 773 kelvin using a band structure engineering approach.
Thermoelectric materials have always been promising for waste energy recapture, but have often seemed just out of reach. It's exciting to see some significant strides in the field.
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Special Membership Requirements:
This WG is open to any NanoLog member who wishes to help this WG achieve its goals.
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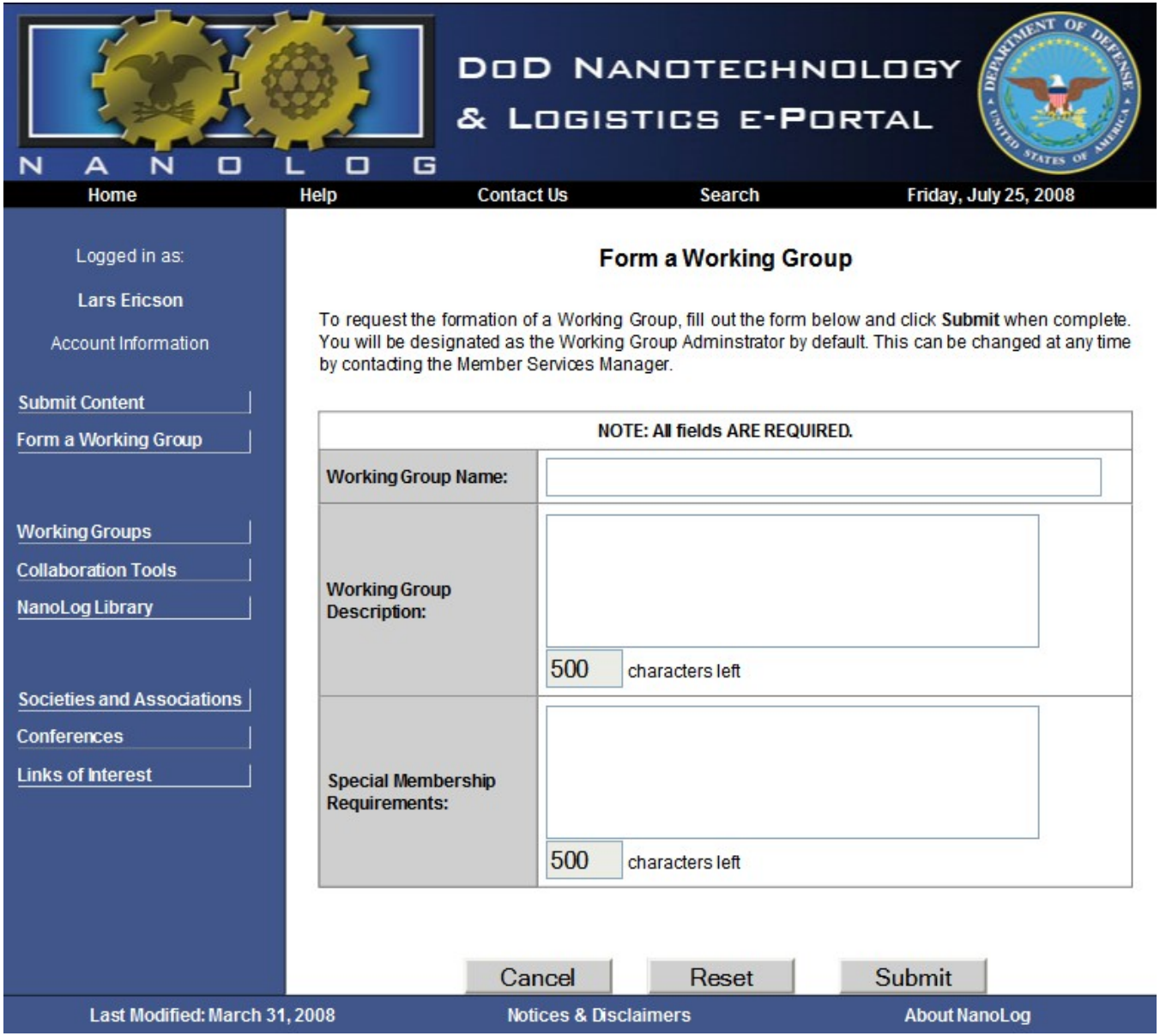
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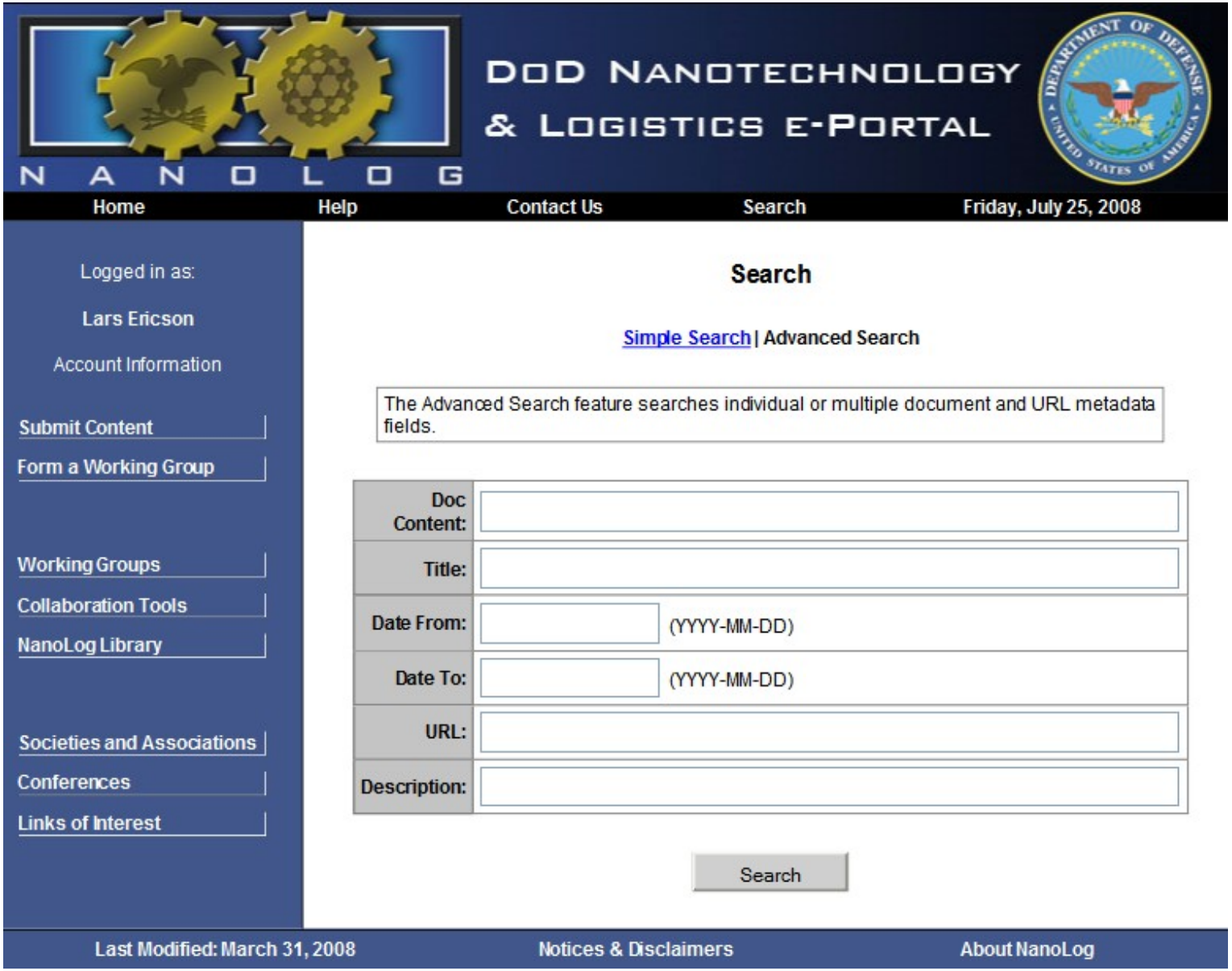
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